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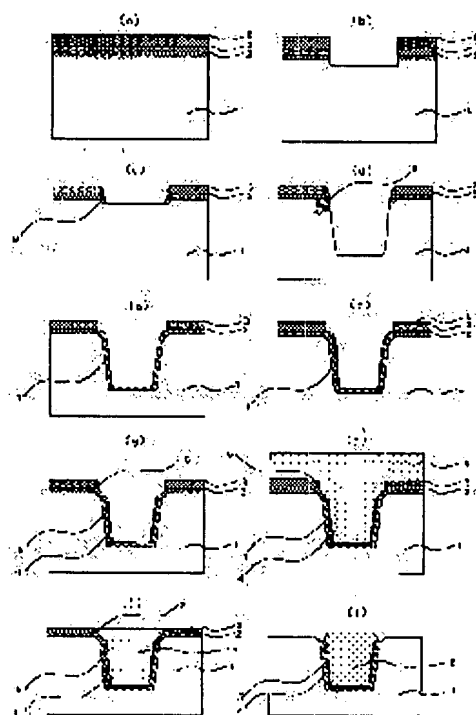
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(54) SEMICONDUCTOR DEVICE AND ITS MANUFACTURING METHOD

(57)Abstract:

PROBLEM TO BE SOLVED: To realize a high reliable semiconductor device by suppressing generation of foreign materials and electric field concentrations by preventing the excess removal of an oxide film.

SOLUTION: A fixed portion of a pad oxide film 2 and a first silicon nitride film 3 or the like formed on the surface of a silicon substrate 1 are removed. A CVD oxide film 9 is only formed on side walls of the silicon nitride film 3 and the pad oxide film 2, and the inclined portion of the exposed portion of the silicon substrate 1 adjoining to the pad oxide 2 before a trench is formed. A thermal oxide film 4 and a secondary silicon nitride film 5 are formed under a condition that the angle θ_2 of the side wall portion is smaller than that of θ_1 of the trench upper end portion after the CVD oxide film 9 is removed. The silicon nitride film 5 in the trench upper end portion is removed by anisotropic dry etching method. By this, the silicon nitride film 5 on the side wall in the trench may not be removed when the silicon nitride film 3 is removed so that no silicon nitride film is present in the trench upper end portion.



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